

WHAT IS CLAIMED IS:

Sub A8 → 1. A bus power-supply device structured to supply power from a power-supply voltage of a node to a serial bus connected to the node through a physical layer and a plurality of connectors conductive to each other of the node, wherein

when none of a power-supply voltage of said node is supplied, a DC voltage is supplied from said serial bus to said physical layer, and

when said power-supply voltage is supplied, a path for supplying a DC voltage from said serial bus to said physical layer is cut off to supply a DC voltage from said power-supply voltage to said physical layer.

2. The bus power-supply device as set forth in claim 1, comprising:

voltage detection means for detecting said power-supply voltage being supplied or not being supplied, and

selection means for supplying a DC voltage coming from said serial bus to said physical layer when said voltage detection means is yet to detect supply of a power-supply voltage and cutting off the path for supplying a DC voltage from the serial bus to said physical layer to supply a DC voltage from the power-supply voltage to said physical layer when said voltage detection means detects supply.

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3. The bus power-supply device as set forth in claim
1, comprising
a comparator as said voltage detection means.

4. The bus power-supply device as set forth in claim
2, comprising
as said selection means:

5 a first path for supplying power from said power-
supply voltage to said physical layer, and
a second path for supplying power coming from
said serial bus to said physical layer, wherein
when power is supplied from said power-supply
voltage, said second path is cut off.

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5. The bus power-supply device as set forth in claim
2, comprising
a semiconductor switch as said selection means.

6. The bus power-supply device as set forth in claim
2, comprising
a comparator as said voltage detection means.

7. The bus power-supply device as set forth in claim
2, comprising
a relay element as said voltage detection means
and said selection means.

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8. The bus power-supply device as set forth in claim 1, comprising:

5 a power-supply circuit for converting said power-supply voltage into a DC voltage for said serial bus and outputting the DC voltage,

voltage conversion means for converting a DC voltage output from said power-supply circuit into a DC voltage for said physical layer,

10 voltage detection means for detecting said power-supply voltage being supplied or not being supplied to said power-supply circuit, and

15 selection means for supplying a DC voltage applied from said serial bus to said voltage conversion means when said power-supply voltage is not supplied to said power-supply circuit and cutting off a path for supplying a DC voltage from said serial bus to said voltage conversion means to supply an output of said power-supply circuit to said voltage conversion means when said power-supply voltage is supplied.

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9. The bus power-supply device as set forth in claim 8, comprising

as said selection means:

5 a first path for supplying power from said power-supply voltage to said physical layer, and

a second path for supplying power coming from

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said serial bus to said physical layer, wherein
when power is supplied from said power-supply
voltage, said second path is cut off.

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10. The bus power-supply device as set forth in claim
8, wherein

said voltage detection means detects said power-supply voltage being supplied or not being supplied by detecting an output voltage of said power-supply circuit

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11. The bus power-supply device as set forth in claim
8, wherein

said voltage detection means detects said power-supply voltage being supplied or not being supplied by detecting an output voltage of said power-supply circuit and which further comprises as said selection means:

a first path for supplying power from said power-supply voltage to said physical layer, and

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a second path for supplying power coming from said serial bus to said physical layer, wherein when power is supplied from said power-supply voltage, said second path is cut off.

12. The bus power-supply device as set forth in claim
8, comprising

as said selection means:

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a first path for supplying power from said power-supply voltage to said physical layer, and
a second path for supplying power coming from said serial bus to said physical layer, wherein when power is supplied from said power-supply voltage, said second path is cut off, and
10 said selection means is structured by a semiconductor switch.

13. The bus power-supply device as set forth in claim 8, wherein

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said voltage detection means detects said power-supply voltage being supplied or not being supplied by detecting an output voltage of said power-supply circuit, and

said selection means is structured by a semiconductor switch.

14. The bus power-supply device as set forth in claim 8, comprising

a comparator as said voltage detection means.

15. The bus power-supply device as set forth in claim 8, comprising

a relay element as said voltage detection means and said selection means.

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16. A node connected to a serial bus, comprising:
a plurality of connectors connected to the serial
bus each having a power-supply terminal to which a DC
voltage is applied from other nodes and a signal
terminal to and from which a signal from other nodes is
input and output,
a physical layer for outputting a signal input
through a signal terminal of one connector to a signal
terminal of the other connector, and
10 a bus power-supply device structured to supply
power from a power-supply voltage to said physical layer
and said serial bus, wherein
power-supply terminals of said plurality of
connectors are rendered conductive to each other,
15 said bus power-supply device
supplies a DC voltage from the serial bus to said
physical layer through said power-supply terminal when
none of a power-supply voltage of said node is supplied,
and
20 cuts off a path for supplying a DC voltage from
said serial bus to said physical layer to supply a DC
voltage from the power-supply voltage to said physical
layer when said power-supply voltage is supplied.

17. The node as set forth in claim 16, wherein
said bus power-supply device comprises:
~~voltage detection means for detecting said power-~~

5 supply voltage being supplied or not being supplied, and
selection means for supplying a DC voltage coming
from said serial bus to said physical layer when said
voltage detection means is yet to detect supply of a
power-supply voltage and cutting off the path for
supplying a DC voltage from the serial bus to said
10 physical layer to supply a DC voltage from the power-
supply voltage to said physical layer when said voltage
detection means detects supply.

18. The node as set forth in claim 17, comprising
as said selection means of said bus power-supply
device:

5 a first path for supplying power from said power-
supply voltage to said physical layer, and
a second path for supplying power coming from
said serial bus to said physical layer, wherein
when power is supplied from said power-supply
voltage, said second path is cut off.

10 19. The node as set forth in claim 16, wherein
said bus power-supply device comprises:

5 a power-supply circuit for converting said power-
supply voltage into a DC voltage for said serial bus and
outputting the DC voltage,

voltage conversion means for converting a DC
voltage output from said power-supply circuit into a DC

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voltage for said physical layer,
10 voltage detection means for detecting said power-
supply voltage being supplied or not being supplied to
said power-supply circuit, and
selection means for supplying a DC voltage
applied from said serial bus to said voltage conversion
means when said power-supply voltage is not supplied to
15 said power-supply circuit and cutting off a path for
supplying a DC voltage from said serial bus to said
voltage conversion means to supply an output of said
power-supply circuit to said voltage conversion means
when said power-supply voltage is supplied.